

DOCUMENT RESUME

ED 467 005

CE 083 624

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TITLE Labour Market Effects of Employment Protection. IAB Labour Market Research Topics.
INSTITUTION Institute of Employment Research, Nurenberg (Germany).
REPORT NO IAB-48
ISSN ISSN-0945-8093
PUB DATE 2002-00-00
NOTE 37p.
AVAILABLE FROM IAB, Regensburger Strasse 104, 90327, Nurenberg, Germany
(Annual price: 30 German Marks). For full text:
<http://www.iab.de/ftprotoptics48.pdf>.
PUB TYPE Reports - Evaluative (142)
EDRS PRICE EDRS Price MF01/PC02 Plus Postage.
DESCRIPTORS Comparative Analysis; Economic Development; Economic Factors;
Economic Impact; *Employment Patterns; Employment Practices;
Federal Legislation; *Federal Regulation; Foreign Countries;
Influences; Job Security; *Labor Legislation; *Labor Market;
Policy Formation; *Public Policy; Theory Practice
Relationship; Unemployment
IDENTIFIERS *Germany; Impact Studies; Organisation for Economic
Cooperation Development

ABSTRACT

The labor market effects of employment protection were examined in a study of Germany's employment protection regulations and their impact on employment practices and patterns. The following topics were considered: (1) the question of whether Germany's labor market problems are a result of regulations; (2) employment security as a subject of labor market regulation; (3) labor-economics criticism of employment protection; (4) the labor market effects of employment protection regulations in Germany and in other member countries of the Organisation for Economic Cooperation and Development; and (5) empirical and theoretical contradictions of the law and economics of employment protection. The study concluded that the labor market effects of employment protection regulations are frequently overrated. If the statistical relationship between a low regulation level and high economic growth is disregarded, there is little evidence that regulation strictness has an effect on levels of employment and unemployment. The study's empirical and theoretical findings were said to provide no justification for large-scale deregulation of employment protection legislation. However, several adjustments in economic policy in response to recent changes in Germany's economic structure were recommended. (Three tables of data related to the relationship between growth and the labor market are appended. The bibliography lists 20 references.) (MN)

IAB *Topics*

IAB Labour Market Research Topics

Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit
Institute for Employment Research of the Federal Employment Services, Germany

No. 48, 2002

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Ulrich Walwei

Labour Market Effects of Employment Protection

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Institut für Arbeitsmarkt- und Berufsforschung der Bundesanstalt für Arbeit (IAB),
Regensburger Strasse 104, 90478 Nürnberg/Germany
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Distribution:

To order apply to the IAB, Regensburger Strasse 104, 90478 Nürnberg

Annual price:

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ISSN 0945-8093

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- research in skills and qualifications
- technological development and the labour market
- business and personnel management

Labour Market Effects of Employment Protection

0 Abstract

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2 Employment security as a subject of labour market regulation

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References

Ulrich Walwei is a senior researcher and head of department at the Institut für Arbeitsmarkt- und Berufsforschung (Institute for Employment Research – IAB). The author wishes to thank Gerd Zika for the arithmetical work which forms the basis for Section 4.2.

0 Abstract

In Germany employment protection regulations are one of the key areas of statutory labour market regulation. Since the early 1980s the degree of flexibility of regulations to safeguard employment has been the subject of the debate surrounding the need to deregulate labour law. Possible counter-productive effects of employment protection on the levels of economic growth, employment and unemployment as well as on the increasing persistence of unemployment are a central issue in the still controversial debate. Starting out from the main points of criticism levelled at rather strict employment protection such as that in Germany, the paper selects an internationally comparative perspective. It is based firstly in detail on an extensive OECD study in the 1999 "Employment Outlook" on the labour market effects of employment protection. Secondly this is augmented by calculations made at the IAB on the relationship between regulation strictness on the one hand and growth dynamics and employment and unemployment thresholds on the other hand. Then the results are integrated into a broader theoretical-conceptual framework, namely the knowledge of law and economics.

The paper comes to the following results: the labour market effects of regulations on employment protection are frequently overrated. Thus there is little evidence that regulation strictness has an effect on the levels of employment and unemployment, if one disregards the statistical relationship between a low regulation level and high economic growth, which requires further examination. However, such regulations are probably not neutral with regard to the structure of unemployment and employment. New entrants to the labour market, people returning to work and unemployed people have a harder time on regulated labour markets. The empirical and theoretical findings provide no justification for a large-scale deregulation of employment protection legislation. Nevertheless in every legal system there is some need for revision because the prevailing conditions are in a constant state of change. The conclusion looks at the issue from an employment-policy viewpoint, and discusses the possible need for reform in the institutionalisation of employment protection in particular against the background of the change in the economic structure.

1 Introduction: Labour market problems as a result of regulations?

For some time the macro-policies of the industrial countries have been converging. In almost all countries fiscal policy is pursuing a course of consolidation. Monetary policy feels obliged to follow the aim of price level stability. This orientation of macro-policy has brought with it the desired stability successes in many countries: the reduction of national deficits which used to be accepted and low inflation rates. Obviously, however, comparable macro-policies are "processed" to very different extents in the economies – which is also true of exogenous shocks (e.g. developments in the world economy) or also demographic changes. This means that even with quite similar monetary and fiscal policy frameworks there are striking differences between the countries as regards economic growth and employment.

For the efficiency of macro-policy, institutional arrangements – especially those concerning the allocation of resources – could play a role which is not to be underestimated. It is necessary here to think especially of regulations concerning the goods and labour markets,

which are often blamed, in the sense of rigidities, for a lack of market transparency, low adjustment speed and insufficient allocation efficiency. For reasons of space alone it would make little sense to want to prepare for a "sweeping blow" concerning regulation policy in this paper. The intention of this paper is more to single out a striking example. This example is the "evergreen" of the deregulation debate: regulations regarding employment security (among other things regulations on dismissal protection and on different forms of temporary employment).

The paper begins with a description of what is regulated on the labour market and what form this regulation takes. In Germany employment protection regulations are one of the key areas of statutory labour market regulation. Since the early 1980s the degree of flexibility of regulations to safeguard employment has been the subject of the debate surrounding the need to deregulate labour law. Possible counter-productive effects of employment protection on the levels of economic growth, employment and unemployment as well as on the increasing persistence of unemployment are a central issue in the still controversial debate. Starting out from the main points of criticism levelled at rather strict employment protection such as that in Germany, the paper selects an internationally comparative perspective. Firstly it is based in detail on an extensive OECD study in the 1999 "Employment Outlook" on the labour market effects of employment protection (cf. OECD 1999). Secondly this is then augmented by calculations made at the IAB on the statistical relationship between regulation strictness on the one hand and growth dynamics and employment and unemployment thresholds on the other hand. After this the findings are integrated into a broader theoretical-conceptual framework, namely the knowledge of law and economics. In the outlook, possible needs for reform in the institutionalisation of employment protection are then discussed more from the point of view of employment policy.

2 Employment security as a subject of labour market regulation

In every legal system there is a permanent need for revision because the prevailing conditions for the subject of the regulation may have changed. This is why the debate surrounding a labour law that is in agreement with the objectives can be seen as a permanent task of an economy that is in a continuous state of change. It must therefore be clarified whether the reasons for the regulation can still be asserted, whether they have meanwhile ceased to apply or have become less workable, or whether – irrespective of the justification for a legal regulation – the costs have risen for the actors involved. The latter could become apparent for example by increased "circumvention" (e.g. from more heavily to less heavily regulated employment forms).

The Deregulation Commission¹ once defined regulation as follows: "Regulation is any state or state-sanctioned restriction of possibilities of action, of people's rights of disposal. It concerns people's disposition over themselves, over things and over rights, whether actual, legal or especially contractual in nature" (Deregulation Commission, 1991, p.1). It is necessary to distinguish between two types of regulations:

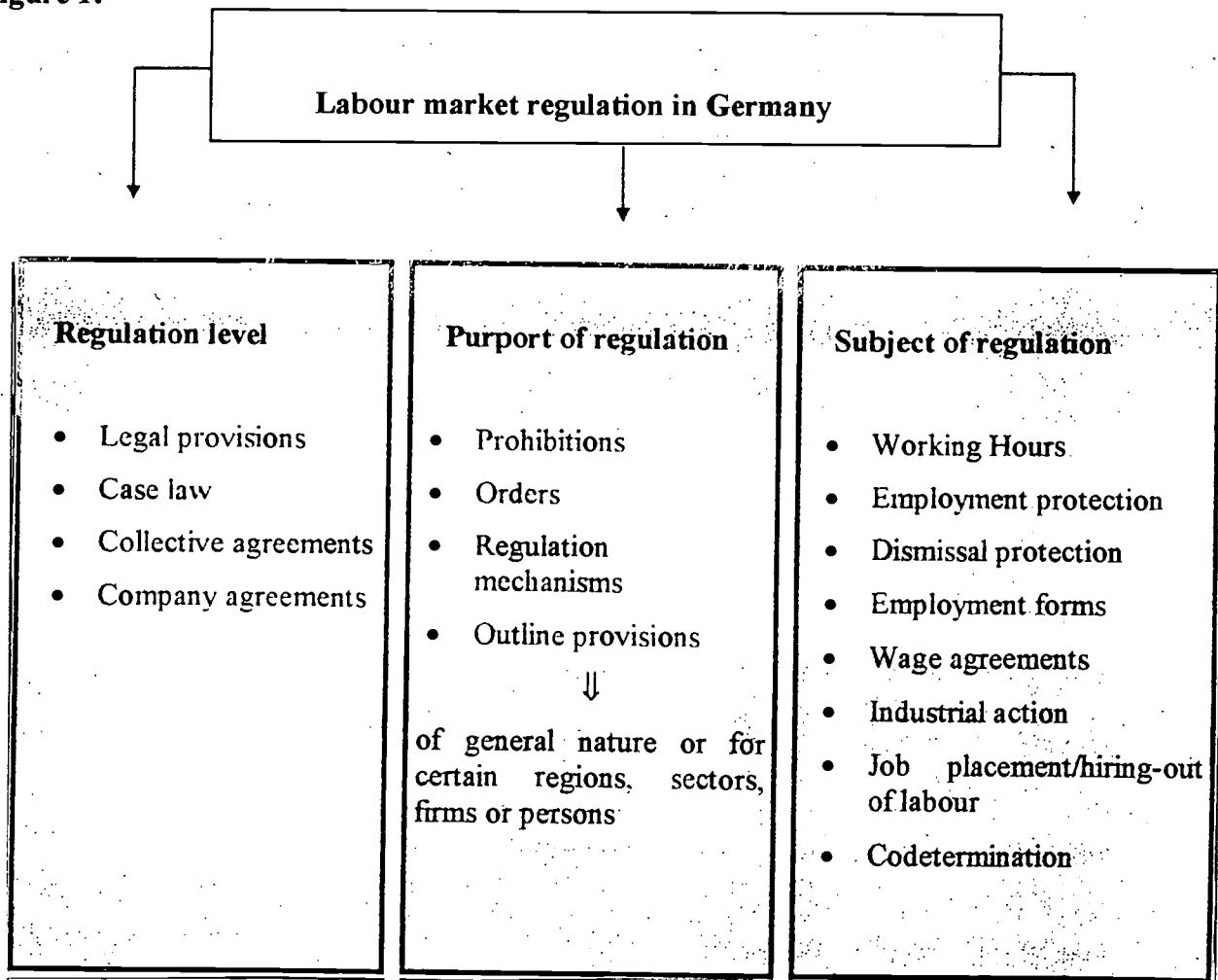
¹ In 1987 the Federal government decided to appoint an independent expert commission to reduce the number of regulations that are not in agreement with market conditions (Deregulation Commission). This commission was given the task of preparing reports on relevant subjects (including the labour market). The quotation above is taken from the publication of the full report.

- constitutive regulations concern general rules which enable individuals to live and act together. These regulations include in particular property law, contract law, criminal law and also road traffic regulations;
- special regulations on the other hand only concern the actions of certain groups. These regulations are aimed at securing satisfactory results from an economy based on the division of labour. Essentially these are restrictions of contractual freedom, some of which are justified by the weaker party's need of protection. They include among other things labour law.

German labour law is part of a more extensive labour market regulation (cf. Figure 1). It consists of legal provisions and so-called "case law". As legal provisions are often not adequately precise, case law serves to put them into more concrete terms. This has advantages and disadvantages:

- on the one hand the courts can also use scope for interpretation and discretion to the effect that labour law is adapted to changes in the working world;
- on the other hand, however, case law also always causes legal uncertainty.

Figure 1:



The majority of contractual relationships between employers and employees are not regulated by labour law but by means of collective agreements in the context of wage agreements and

works agreements. Thus even if labour law were deregulated this would not leave a vacuum. However, even if collective agreements ceased to materialise, such a situation can not necessarily be equated with unregulated employment relationships. Agreements of any kind could also be concluded at individual level.

Labour market regulations always also imply restrictions of contractual freedom and thus of certain options of action. They can have very different implications: for instance there are prohibitions (e.g. the hiring-out of labour in the construction industry) and orders (e.g. obligation to have a 'social plan' for the event of redundancies). In addition there are procedural regulations at legal level (such as the collective bargaining autonomy and codetermination) or maximum and minimum standards, which open up a more or less broad scope for discretion (e.g. concerning working hours).

Furthermore, labour market regulations can be valid without restriction. This typically applies for broad areas of labour law. Labour market regulations can, however, also be restricted to certain regions, sectors, firms or persons. Examples of this are the protection of special groups of people or exceptions for small enterprises in labour law, as well as collective agreements effective at sectoral and/or regional level.

As shown in Figure 1, there are many different subject areas for labour market regulations. Examples are working hours (incl. shop closing hours), employment protection (among other things also for certain groups of workers), dismissal protection, the regulations on special forms of employment (e.g. part-time work, temporary work via employment agencies, and fixed-term employment), the laws on collective agreements, the laws on industrial action, the regulations on job placement (incl. the hiring-out of labour) and codetermination in firms.

All of the named areas of labour market regulation are the starting-point of fierce controversy surrounding the expediency of the institutional framework in Germany as far as employment policy is concerned. An evergreen in the debate surrounding the need for labour law to be deregulated is the degree of flexibility of regulations to safeguard employment. Employment security has a number of dimensions, however, that are of great importance for the further discussion of the subject (cf. Büchtemann/Walwei 1996).

First of all it is necessary to differentiate between macroeconomic and microeconomic employment security. The degree of employment security at macro-level can be measured in terms of the probability of being in work in general and remaining so. With an unchanged demand for labour, this includes the possibility of being able to find a comparable job again after losing another job. The extent of employment security at micro-level on the other hand only corresponds to the probability of remaining in employment with the current employer. It need not necessarily include job security. For employment security at firm level can, if necessary, also be guaranteed by the possibility of redeploying workers within the firm.

Employment security at macro- and micro-level are mutually dependent, however: when the labour market situation is good, employment security at macro-level is relatively high. Employment security at micro-level (e.g. in the form of a statutory dismissal protection) then tends to be associated both with lower costs for the firms and with less benefit for the employees – even when the occupational and/or regional mobility that may be necessary in the case of a change of job is taken into account. The opposite is true when the employment situation is poor.

It is also necessary to differentiate between *de facto* and *de jure* employment security. What is understood by *de facto* employment security is when for example employees in a small enterprise can enjoy a high level of *de facto* employment security in spite of a lack of contractual agreements. *De jure* employment security on the other hand is based either on individual contractual agreements or on legal provisions or collective agreement regulations. The debate about the appropriate degree of flexibility of dismissal protection and the so-called "temporary employment forms" (such as fixed-term employment or the hiring-out of labour) associated with this focuses above all on their collectively binding guidelines. Here both the level of the restrictions and the question as to the appropriate level of regulation are discussed controversially.

In the German system, however, dismissal restrictions must not in any way be equated with employees not being dismissable. Employers have to give objective reasons to justify dismissals and have to observe procedural regulations (e.g. notice periods or the consultation of the workers' representation). Arbitrary dismissals should be ruled out by the existing dismissal protection including the restriction of the freedom to conclude fixed-term contracts. Legal provisions or collective agreement regulations can furthermore provide that groups of workers are protected from dismissal to different extents. Thus dismissal protection is dependent on length of employment; the level of dismissal protection is lower during probationary periods; fixed-term employment contracts exclude dismissal protection when the agreed time period expires; in the case of temporary work fixed-term employment is the exception; civil servants enjoy a higher level of dismissal protection; the same applies to the disabled and to pregnant women.

Dismissal protection constitutes the heart of the regulations on the termination of employment. The remarks have shown that there are similarities and differences between dismissal protection in the legal sense on the one hand and actual employment security on the other hand. Thus it is possible for there to be actual employment security without legal dismissal protection, e.g. in small enterprises or if a fixed-term contract is expected to be extended. On the other hand a permanent employment contract (in other words a job with valid dismissal protection) must not be equated with a high level of employment security e.g. in shrinking industries or in the case of fluctuations in orders.

3 Labour-economics criticism of employment protection

If the neoclassical paradigm which is dominant in economic theory is taken as a basis, the question as to the expediency of labour market regulations requires no further analysis. Restrictions of contractual freedom on the labour market are to be cancelled because they are accompanied by losses in efficiency for the contracting parties. According to this viewpoint, labour market regulations lead to suboptimal results because exchange possibilities (here in the sense of the materialisation of employment contracts) are diminished. It is easy to show this using the example of dismissal protection. Effective dismissal protection restricts the contractual freedom of firms, e.g. when employees can not be dismissed freely. An effective dismissal protection also impairs substitution competition among the workers, however, because outsiders can not displace the insiders at will.

Regarding institutional regulations of employment security, there are in particular five points of criticism whose relevance should be acknowledged from an employment-policy point of view:

Firstly the *cost argument*: employment protection regulations (e.g. dismissal protection regulations) have a negative effect on firms' willingness to hire. The firms anticipate the expected dismissal protection costs (e.g. dismissal indemnity), which under otherwise equal conditions (e.g. unchanged labour productivity) contributes to raising the costs of the factor of labour. If the demand for labour increases in the firm (measured in terms of the necessary volume of work), the relative costs of the various adjustment alternatives (e.g. new permanent hirings, fixed-term hirings, overtime, use of agency workers) affect the decision as to how the adjustment should occur.

Secondly the *structural change argument*: the more stringent the legal framework of employment protection is, the more stable the employment relationships are and thus also the more stable the workers' planning certainty is (e.g. with regard to purchasing consumer durables). Fewer movements (less fluctuation) in employment can, however, have a "preserving" effect with regard to the given economic structure. The structural change from shrinking industries to growing industrial sectors and thus from large-scale industrial enterprises to the more medium-sized services industry would only be able to take place hesitantly. A lack of flexibility would therefore lead to economic strains, which, especially in times of pressure to adapt to changing economic conditions, slow down necessary changes and would thus result in growth losses.

Thirdly the *persistence argument*: reducing the movements on the labour market can also have negative effects in another respect. Protective regulations can oppose outsiders, in other words unprotected people outside the employment system. For instance above all in times of high unemployment, dismissal protection reduces fluctuation and can contribute to the persistence of unemployment. A high level of protection entitlement after hiring can result in certain groups of workers (e.g. people who come under a special dismissal protection – as is the case for severely disabled people in Germany) having an increased risk of remaining unemployed. As the protection of special groups of people is intended to offset social disadvantages and is therefore primarily socially justified, it is possible, if the firms experience a one-sided strain, that an "economic curse of the well-meant" could occur, i.e. the protection may even aggravate the situation of those who are actually in need of the protection.

Fourthly the *evasion argument*: it follows from the cost argument that extensive protective regulations provide incentives to avoid the protected employment form. Thus strict dismissal protection gives firms a reason to select in particular those forms of employment which have little or no dismissal protection (e.g. fixed-term employment, the use of temporary agency workers or contracting out work to self-employed workers). This evasion probably has hardly any impact on the levels of employment and unemployment, but has more effect on their composition. It does, however encourage a segmentation on the labour market into a core workforce and marginal workers.

Fifthly the *uncertainty argument*: regulations do not always provide for legal clarity. Employment protection regulations can illustrate this, too. The lack of clarity in legal principles due to the shortage of suitable statutory regulations (e.g. in the social selection in the event of redundancies) leads to unnecessary uncertainties on both sides of the labour

market. Less case law and more legislative facts being put down in law instead would increase planning certainty. In particular the 1985 reform of the law on fixed-term contracts, which simplified the conclusion of fixed-term employment contracts, took this problem into account. Ultimately, uncertainties associated with regulations cause transaction costs which, as far as the possible labour market effects are concerned, join the "cost argument" described above.

If the points of criticism were supported by empirical findings, strict employment protection regulations (such as those in Germany) could not be maintained from the labour-economics viewpoint. With regard to the present empirical findings, in particular regarding the first three arguments, which are to be understood here as working hypotheses, the following section refers primarily to international comparisons.

4 Labour market effects of employment protection regulations

Intertemporal and international comparisons are possible for examining the labour market effects of employment protection regulations. Whereas recording the results of changes in the law is the central issue in intertemporal comparisons, international comparisons concern the comparative performance of different regulation regimes.

In the context of intertemporal comparisons it is not always easy to isolate the effects of changes of law. Amendments of laws are frequently eclipsed by other factors such as the economic trend or also other patterns of behaviour that are not dependent on legal outline conditions. Regulations affect the cost and benefit of various action alternatives for those concerned. Whether the scope for action which is defined by the institutional guidelines (e.g. because of the prevailing business culture) is then also made full use of, however, and also whether it is accompanied by positive labour market effects is a different issue. This is proven by two studies which were commissioned by the Federal Ministry for Labour and Social Affairs on the effects of the regulation on fixed-term employment in the Employment Promotion Act (cf. Büchtemann/Höland 1989, Bielinski 1997).²

Both of the studies came to the concurrent result that the new regulation concerning fixed-term employment was taken advantage of to a quite considerable extent, but that if the "deadweight" is left aside, in other words such cases of fixed-term contracts that would already have been permissible according to the previously decisive court ruling made by the Federal Labour Court (Bundesarbeitsgericht - BAG), only a minority of the fixed-term contracts that had occurred as a result of the new regulation remained. If then the question is asked as to the "additional effect", in other words the extent to which firms have carried out more fixed-term hirings as a result of the new regulation than they had originally intended, the effects for the labour market fall further. If finally the "substitution effect" is taken into account, which covers those fixed-term hirings that would otherwise have occurred with permanent employment contracts – an effect which, though small, was also proven by the studies – the remaining labour market effect is minute. As fixed-term contracts in Germany

² The studies focused on the scope, structure, areas of use and employment consequences of the regulation on fixed-term employment in the 1985 Employment Promotion Act, which is to be regarded as a permanent regulation. The crux of the regulation was the abolition of the previous need to specify objective reasons for one-off fixed-term contracts lasting up to 18 months.

serve to a considerable extent as a test and observation phase, the results of the studies confirm neither the hopes held at the time by those who initiated the law (additional employment possibilities) nor the fears of those who opposed the law (substitution of permanent employment by fixed-term contracts).

In the following section it is to be tested whether it is possible to make different statements concerning the labour market effects of regulations to safeguard employment on the basis of international comparisons.

4.1 Results of the 1999 OECD study

The OECD study on the subject of "Employment Protection and Labour Market Performance", which was published in the second section of the 1999 Employment Outlook, extended the knowledge about the labour market effects of employment protection legislation. Starting out from a country ranking of legislation strictness, the OECD study contains bivariate and multivariate analyses of the relationship between employment protection regulation on the one hand and labour market performance on the other hand.

In the study, on the basis of previous studies, the OECD developed an indicator of legislation strictness in the field of employment protection. The indicator takes into account regulations concerning individual dismissals, collective dismissals and the temporary employment forms such as fixed-term employment and the supply of labour by temporary work agencies (cf. Figure 2 for the individual aspects taken into account). For the evaluation the OECD assigned a strictness indicator to each aspect of regulation. The ordinal-scale indicators ranged from 0 (no restrictions) to 6 (heavy restrictions). Intermediate values – with one position after the decimal point – were also attributed.

Figure 2: Employment protection and labour market performance (OECD 1999)
- Strictness indicators for "country ranking" -

Individual dismissal protection

- Need to justify dismissals
- Notice and severance pay
- Procedural regulations

Protection against collective dismissals

- Definition
- Delay before notice may start
- Additional notice periods
- Other additional costs to employer

Fixed-term employment relationships

- Need to justify
- Maximum duration
- Possibility of renewal

Temporary employment/temporary work agencies

- Sectoral or occupation-related restrictions
- Maximum duration
- Possibility of renewal

Although the OECD has elaborated, with the country ranking, the most highly differentiated evaluation scheme made so far, there are still some restrictions with regard to the reliability of the indicators. One difficult problem is the weighting of the evaluated aspects of regulation. This can only occur sensibly if the relationships between the effects were adequately researched and robust results are available. Depending on the variation of the weighting factors, shifts in the ranking of the countries are therefore to be expected. The ranking also mainly takes into account only legal provisions. In contrast, case law and collective agreements could only be taken into account to a limited extent. It is difficult to assess how much this distorts the ranking because of the recording problems in these two areas. After all, law (supposed strictness) and reality (actual meaning of the institutional framework) need not always be in agreement. In particular with international comparisons it is necessary to consider the fact that the legally defined scope for action and actual practices can differ from country to country. Differences with regard to the "legal reality" can also arise as a result of deviations from the legal norm being sanctioned differently. Nevertheless the OECD country ranking is based on a very cleverly devised evaluation scheme which is at least so far unparalleled.

The procedure followed by the OECD with the country ranking is now to be explained using Germany as an example (cf. Table 1).

Table 1:**Employment protection and labour market performance (OECD 1999)****- Strictness indicators of the "Country Ranking" for Germany -**

	End of the 1980s Score (position)	End of the 1990s Score (position)
Individual dismissal protection	2.7 (13)	2.8 (21)
Collective dismissals		3.1 (13)
Temporary employment forms	3.8 (15)	2.3 (18)
- of which: fixed-term contracts	3.5 (15)	1.8 (15)
- of which: temporary work, TWAs	4.0 (12)	2.8 (18)
Overall score¹⁾		
Variant 1: without consideration of collective dismissals	3.2 (14)	2.5 (18)
Variant 2: with consideration of collective dismissals		2.6 (20)

Notes:

- Scores range from 0 to 6
(a high score signalises heavy restrictions)
- The figure in brackets is the country's rank position
(late 1980s: n = 19 countries; late 1990s: n = 26 countries)

1) Note on the weighting of the individual indicators:

In Variant 1 the main categories of individual dismissal protection and temporary employment forms are included with equal weights. In Variant 2 collective dismissals are additionally taken into account and then an arithmetic mean is formed from the scores of the three main categories.

Source: OECD 1999

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Both in the late 1980s and the late 1990s the indicator and the ranking resulting from it show that the employment protection regulations in Germany are to be classed as rather restrictive by international standards. Thus the strictness indicator puts Germany in 20th place out of 26 countries in the late 1990s, with a overall score of 2.6. Disregarding the regulations on collective dismissals results in only an insignificant change, with an overall score of 2.5 and a shift to 18th place. The "better" 14th position in the late 1980s, associated with the higher score of 3.2, can primarily be put down to the fact that the ranking only referred to a total of 19 countries at that time.

The lower overall score for the strictness indicator in the late 1990s (2.5) compared with the late 1980s (3.2) occurred above all as a result of changes in the forms of temporary employment. Following the removal of the need to specify an objective reason for fixed-term contracts lasting up to 18 months (1985), the maximum duration of fixed-term contracts was raised to 24 months in 1996. In the area of temporary work via employment agencies the maximum duration of contracts was gradually increased to 12 months (1997). In contrast, the increase in the employment threshold at which dismissal protection applies, from 6 to 11 employees in a firm, which came into force in October 1996, was revoked at the beginning of 1999. The fact that the position in the country ranking did not improve in spite of these moderate deregulation steps in Germany can be attributed above all to the fact that a remarkable deregulation trend took place in the regulation areas concerned especially in highly regulated OECD countries (cf. Table 2). The countries emphasised quite different aspects in their deregulation however. A few gave precedence to relaxing dismissal protection, whereas the majority (like Germany) made the use of temporary employment forms easier.

Table 2:

Countries	Summary indicator ¹⁾	
	Late 1990s	Late 1980s*
United States	0.2	0.2
United Kingdom	0.5	0.5
Canada	0.6	0.6
Ireland	0.9	0.9
Australia	0.9	0.9
New Zealand	1.0	..
Switzerland	1.0	1.0
Denmark	1.2	2.1
Hungary	1.4	..
Poland	1.6	..
Czech Republic	1.7	..
Finland	2.0	2.3
Netherlands	2.1	2.7
Belgium	2.1	3.1
Austria	2.2	2.2
Sweden	2.2	3.5
Japan	2.4	..
Germany	2.5	3.2
Korea	2.6	..
Norway	2.6	3.0
France	3.0	2.7
Spain	3.1	3.7
Italy	3.3	4.1
Greece	3.6	3.6
Portugal	3.7	4.1
Turkey	3.8	..

1) The indicator is composed of three components: the regulations on individual dismissal protection, on temporary employment forms and on collective dismissals.

* so far as available

Source: OECD 1999

As the OECD strictness indicator developed in a downward direction in most of the countries, in other words towards deregulation, there were no considerable shifts in the rank order of the countries at the two measurement times, the late 1980s and late 1990s. The Anglo-Saxon countries remain at the top of the list and the South European states are at the end of the table.

On the basis of the present country ranking, in a further step the OECD then examines the impact of employment protection on labour market performance (cf. Figure 3). For this purpose, bivariate relationships between regulation strictness on the one hand, and measures of stock and flow on the labour market and the spread of certain employment forms on the other hand are examined. In addition to this the OECD uses regression models to explain the labour market stock and flow figures by also taking into account as explanatory variables the

structure of collective bargaining, the level of earnings-replacement benefit for the unemployed, the tax wedge, expenditure on active labour market policies and the utilisation of the production potential in addition to the strictness indicator mentioned earlier.

Figure 3:

Employment protection and labour market performance (OECD 1999)
Effects of the degree of strictness on employment and unemployment

<i>Examination of bivariate relationships</i>	<i>Multivariate analyses</i>
<ul style="list-style-type: none"> - <i>Unemployment and employment rates</i> <ul style="list-style-type: none"> -- Overall -- Youth -- Prime-age men -- Prime-age women - <i>Employment forms</i> <ul style="list-style-type: none"> -- Rate of self-employment -- Share of temporary employment -- Share of temporary employment in prime-age -- Share of younger people in temporary employment - <i>Unemployment: flows and duration</i> <ul style="list-style-type: none"> -- Rate of inflow -- Rate of outflow -- Average duration -- Share of long-term unemployed among all unemployed 	<p>Regression models to explain labour market stock and flow figures with the following control variables</p> <ul style="list-style-type: none"> - <i>Collective bargaining structure</i> <ul style="list-style-type: none"> -- Centralisation -- Co-ordination of collective negotiations -- Trade union density -- Collective bargaining coverage - <i>Unemployment benefits</i> <ul style="list-style-type: none"> -- Average gross wage replacement rate -- Maximum duration of benefits - <i>Tax wedge</i> - <i>Expenditure on active labour market policies (as % of GDP)</i> - <i>Utilisation of the production potential</i> - <i>Degree of strictness of employment protection regulations</i>

The results can be summarised as follows: according to the present findings, strict employment protection regulation has hardly any impact on the global level of unemployment. However, the results provide certain evidence that the composition of unemployment can change if regulation is stricter. Unemployment among prime-age men would be lower, though at the expense of younger workers. The level of employment is not really affected, either, according to the results. What is more significant here too, however, are the structural effects, since strict employment protection obviously improves the employment prospects of prime-age men and worsens those of younger workers and of prime-age women. With respect to the flow values there are clearer links. Thus a high level of *de jure* employment security reduces

the fluctuation on the labour market (and raises the stability of employment), lowers the risk of becoming unemployed but simultaneously increases the duration of unemployment when it does occur.

What also emerges from the comparisons is that far-reaching employment protection regulations need not necessarily be accompanied by a high level of temporary employment. The example of Spain shows that this can nonetheless occur. The very restrictive dismissal protection is circumvented by the use of flexible forms of employment (such as a very high level of fixed-term contracts). The opposite is true of Anglo-Saxon countries. There weak dismissal protection results in a low demand for fixed-term contracts. There is, however, another finding concerning the employment forms: according to the analyses made by the OECD, there is a positive correlation between strict employment protection regulations and the rate of self-employment. This relationship should not be overrated however, because especially the South European countries with more extensive dismissal protection often demonstrate a relatively large proportion of self-employed farmers in employment as a whole.

It can be recorded that the present intertemporal comparisons give no indication of employment protection regulation having any significant effects on the level of employment and unemployment. The results of the OECD study emphasise, however, that the structural effects of *de jure* employment security (distribution of employment prospects and unemployment risks) seem to have at least a certain significance. As far as possible revisions of employment protection legislation are concerned, a conflict of aims becomes clear, which is also located at microeconomic level. Deregulation would thus have one effect above all: it would increase the employment prospects of outsiders (also of peripheral workers) at the expense of the employment security of insiders (in particular that of the core workforce).

4.2 Regulation strictness and macro-performance

The second part of the analysis again takes up the idea from the introduction that the effectiveness of macro-policies could also be dependent on the institutional arrangement. The way that economic growth and the labour market work together can be depicted with the aid of specific indicators (cf. on this also: Rheinisch-Westfälisches Institut für Wirtschaftsforschung e.V. 2000). Here the so-called Okun's Law and the so-called Verdoorn's Law are of importance. When using Okun's Law a linear relationship between the change in the unemployment rate ($\Delta A\text{lo}$) and the growth of the economy (ΔBIP) is assumed:

$$\Delta A\text{lo} = \alpha + \beta \frac{\Delta \text{BIP}}{\text{BIP}}$$

Two effects can be derived from this relationship: firstly the GDP growth rate that must be achieved in order for the unemployment rate to fall (unemployment threshold: $-\alpha/\beta$). Secondly the fall in the unemployment rate that is associated with a 1% rise in the national product (growth elasticity of the unemployment rate: β). Okun was especially interested in longer-term relationships. Structural factors were expressly incorporated in this respect (cf. Okun 1962). He cited, for example, regulations concerning employment contracts, technological factors, the formation of human capital and changes in population and labour force participation. The list thus includes factors from the supply-side and the demand-side.

If one wishes to attach less importance to supply-side aspects, a restriction to the relationship between economic growth (ΔBIP) and the change in employment (ΔB) presents itself – also known as Verdoorn's Law:

$$\frac{\Delta B}{B} = \gamma + \lambda \frac{\Delta BIP}{BIP}$$

Here γ is to be seen as an autonomous rate of employment change, whilst λ expresses the contribution of economic growth to the change in employment (the so-called employment intensity). The quotient $-\gamma/\lambda$ can be interpreted as an employment threshold and represents the percentage of economic growth from which employment begins to increase.

The following section goes into the question as to whether there are statistical relationships between strictness of employment protection regulation and relevant macro-indicators. The starting-point for this is Tables A1 to A3. On the basis of regression estimates for the reference period of 1980 to 2000, they provide the resulting threshold values and elasticities for most of the EU countries and the USA. In addition the table contains information about the economic growth and about the development of employment and unemployment for the named period. If the criticism levelled at employment protection regulation were justified, then at least hypothetically the following relationships should exist: an inverse relationship between regulation strictness and economic growth and the growth elasticities according to Okun and Verdoorn, and a positive relationship between regulation strictness and the threshold values according to Okun and Verdoorn.

Table 3 shows the statistical relationship between the named variables. The rank correlation coefficient and the concordance coefficient are used as indicators of the relationship, because only ordinal-scale data are available for the regulation strictness. Whereas for determining the concordance coefficient the indicators for regulation strictness and also the macro-indicators go into the calculations unchanged, a ranking is made for the respective variables when forming the rank correlation coefficients. This has consequences for the interpretation of the table. The values of the concordance coefficient are to be applied to the sign assumed in the above-mentioned hypotheses. In contrast, a positive sign of the rank correlation coefficient confirms the assumed relationship, because the country with the lowest regulation strictness is given position 1, as is the country with the highest economic growth, or the greatest elasticities, or the lowest threshold values.

The results of the bivariate analyses in the table contain a few surprises. It can be seen for instance, that it is not possible to prove a statistical relationship between regulation strictness on the one hand and threshold values or elasticities on the other hand. In the few cases where the sign shows expected direction, only a weak statistical relationship results. This is not least the result of statistical outliers which make it clear that further factors must be taken into account with the macro-indicators of the labour market which are used here. Thus for instance Ireland, which has little regulation, has a relatively high employment threshold. This could have something to do with the country's economic catching-up process, in other words a process with substantial structural change and a large increase in productivity. In contrast, the Netherlands, which has moderate regulation, has a lower employment threshold, which can be put down to the considerable increase in part-time employment there and the longer-term wage moderation.

Table 3: Relationship between regulation strictness and labour-market-relevant macroeconomic indicators

	Economic and labour market indicators 1980 - 1990; regulation strictness late 1980s (for 11 countries)		Economic and labour market indicators 1990 - 2000; regulation strictness late 1990s (for 12 countries)	
	Rank correlation coefficient R	Concordance coefficient K	Rank correlation coefficient R	Concordance coefficient K
Economic growth	0.434	-0.309	0.600	-0.439
Okun's Law				
- Threshold of the drop in unemployment	-0.375	-0.256	-0.082	-0.046
- Growth elasticity of unemployment	0.102	0.073	-0.066	-0.106
Verdoorn's Law				
- Employment threshold	-0.248	-0.200	-0.026	-0.015
- Growth elasticity of employment (employment intensity)	0.216	-0.109	-0.163	0.136

Data basis: The basis for the calculation is Tables A1 to A3 in the Appendix

Definition of Okun's Law and Verdoorn's Law: see explanation in the text

In general, however, the results, which relate closely to the labour market indicators, confirm the findings of the 1999 OECD study. What is all the more surprising is the relatively strong relationship between low regulation strictness and economic growth. This result could be interpreted in two different ways. On the one hand the finding might be a statistical artefact, in other words an "illusory relationship". This could be the case for example because the regulation strictness in the area of employment protection only reflects the actual scope for flexibility in a country very inadequately. On the other hand it could also be a result that needs to be looked into further. For on the basis of international comparisons there is evidence that the strictness of employment protection legislation can be regarded as a "proxy variable" for the regulation of an economy (cf. Eichhorst/Profit/Thode 2001)³. In other words, there would be little change in the country ranking if other aspects of regulation were also included. The Anglo-Saxon countries are once more at the top of the list and the large Continental European and South European states are at the bottom of the list again. In this respect the institutional structure could really have something to do with the different success of the "classical" macro-policies, which are tending to converge. A lower level of regulation

³ The report of the working group Benchmarking and the Bertelsmann Foundation makes use of a so-called "Working Paper" of the OECD by Nicoletti/Scarpetta/Boylaud from 1999. The authors developed for the OECD a system of synthetic indicators with which the intensity of product market regulation can be measured and compared internationally. It depicts the legal framework on the basis of interviews conducted with experts in the late 1990s. For Germany a slightly below-average regulation strictness on product markets emerges. In addition to that the authors found a positive relationship between the regulation intensity on product markets and on the labour markets.

strictness on product and labour markets would thus raise the efficiency and productivity of the economy and therefore also its growth dynamics. In order to substantiate this thesis it would be necessary, however, to examine in even more detail whether the regulation strictness used here can really be regarded as a suitable proxy variable for all kinds of regulations. It would therefore be something like an overall indicator for regulation. However, no papers aimed at constructing such a "mega-indicator" are known to the author. This could also have something to do with the fact that such work would be extremely time-consuming and costly, and would come up against many methodological difficulties.

On the whole the results presented here and also the findings of the OECD study should be interpreted with caution. Although the lack of a statistical relationship between regulation strictness and labour market macro-indicators makes it clear that the macro-performance of an economy definitely does not depend solely on regulations to safeguard employment, this should not lead to the rash conclusion that regulations aimed at employment protection are completely irrelevant for the level of employment and unemployment. In order to be able to confirm this it would be necessary to look into the effects of the institutional structure altogether, in other words the regulations of the labour market and the product market, and the special role of employment protection in this context. This is exceptionally difficult empirically because a large amount of detailed information would have to be evaluated and put into a model. If one selects a broader access to the issue, based on foundations of law and economics, however, it rapidly becomes clear that the sweeping criticism of employment protection regulations ignores relevant issues. This is to be shown in the following section.

5 Law and economics of employment protection: empirical and theoretical contradictions

Contradictions between the common criticism of employment protection regulations and the findings in the previous section which point to weak macroeconomic labour market effects of the institutional framework could also indicate that the points of criticism disregard relevant issues.

The starting-point for this is the following viewpoint: for the labour-economics assessment of the regulation strictness in the area of employment protection it is necessary to take into account effects on hirings and firings (cf. Büchtemann 1990, Walwei 1996). Certainly it is undisputed that a high level of regulation strictness could have a negative effect on firms' willingness to hire workers. If, for example, the relative costs of adjustment to fluctuations in the demand for labour fall as a result of less strict regulation, under otherwise equal conditions this could increase the willingness of the firms in question to hire new workers. In contrast, however, there is the greater probability that as a result of lower dismissal costs in the case of economic difficulty (i.e. a decline in the necessary volume of work) these firms would dismiss workers who can no longer be deployed productively more readily than they would without deregulation. An open question is therefore how the employment trend (balance of more hirings in a boom and more dismissals in a recession) would develop as a result of relaxing dismissal restrictions. It must be taken into consideration on the one hand that the labour costs (as a result of the potential dismissal costs being dropped) would probably tend to fall as a result of deregulation irrespective of the course of the business cycle. This assumes, however, that the labour costs arising as a result of employment

protection regulations are of relevance at all. Three aspects are in favour of compensating for firms' costs for employment protection either in full or in part:

First: one compensation possibility for the additional labour costs arising as a result of strict employment protection can be seen in possible productivity effects. Although an extensive protection against dismissal may not always be incentive-compatible for the work ethic and is therefore not always beneficial (e.g. life-long employment in an almost non-dismissable position), such protective regulations can nonetheless also raise the workers' efficiency. The reason for this is that employment relationships can not be compared with conventional exchange relationships (cf. on this subject also Dörsam 1997). With regard to employment protection regulations there are two viewpoints that are of importance: firstly firm-specific investments and secondly information asymmetries.

Firm-specific investments (e.g. costs of job-familiarisation and further training on the job) are a fundamental reason for the efficiency of long-term contracts and relationships. Such investments constitute a capital whose profitability depends on the duration of the relationship (here: of the employment contract). Longer-term relationships ensure that the interests of those concerned regarding the amortisation of the investments are not endangered. In the event of the relationship being terminated, the investments would otherwise be irretrievably lost (so-called sunk costs).

Information asymmetries result from the incomplete specification of the employment contract. According to Okun, the employer's implicit "career promise" stands opposite the employee's implicit "performance promise".⁴ Norms in labour law that serve the permanence and transparency of the employment relationship help to reduce the uncertainty of potential exchange partners with regard to certain present or future circumstances and to stabilise mutual expectations. In addition such protective norms promote an employment relationship based on a willingness to co-operate, as is shown by game-theory approaches.⁵ Thus employment security in the sense of a low risk of dismissal can have a positive effect on the willingness to perform. It promotes the employees' identification with the firm's objectives, the passing on of knowledge and skills, the mobility within the firm and the acceptance of technical progress.

Secondly: in addition to the labour costs arising as a result of legal employment security it is frequently pointed out that such protective regulations also have an effect on costs because they can be used by insiders to enforce higher wages. Strict employment protection can, however, also lead to wage concessions in the sense of "buying" employment stability. Starting-points for this are provided by the theory of implicit contracts (cf. Schneider 1987). Workers could accept wages below their marginal productivity as an "insurance premium" against dismissals. Depending on the level of the premium, dismissals could be avoided

⁴ On the one hand there is uncertainty on the part of the employer with regard to the employee's willingness to perform because in the context of the employment contract it is not the capacity to work that is bound to the workers which is being exchanged but work outputs which include an employer's right of use of the deployment of the capacity to work in the production process. A further reason to be cited for the employer's imperfect information is the incomplete specification in the employment contract of the demands made of the worker as regards performance. On the other hand the vagueness of employer performance, e.g. guaranteeing advancement possibilities and employment security, affects the employment relationship and the worker's willingness to perform (cf. on this Okun 1981).

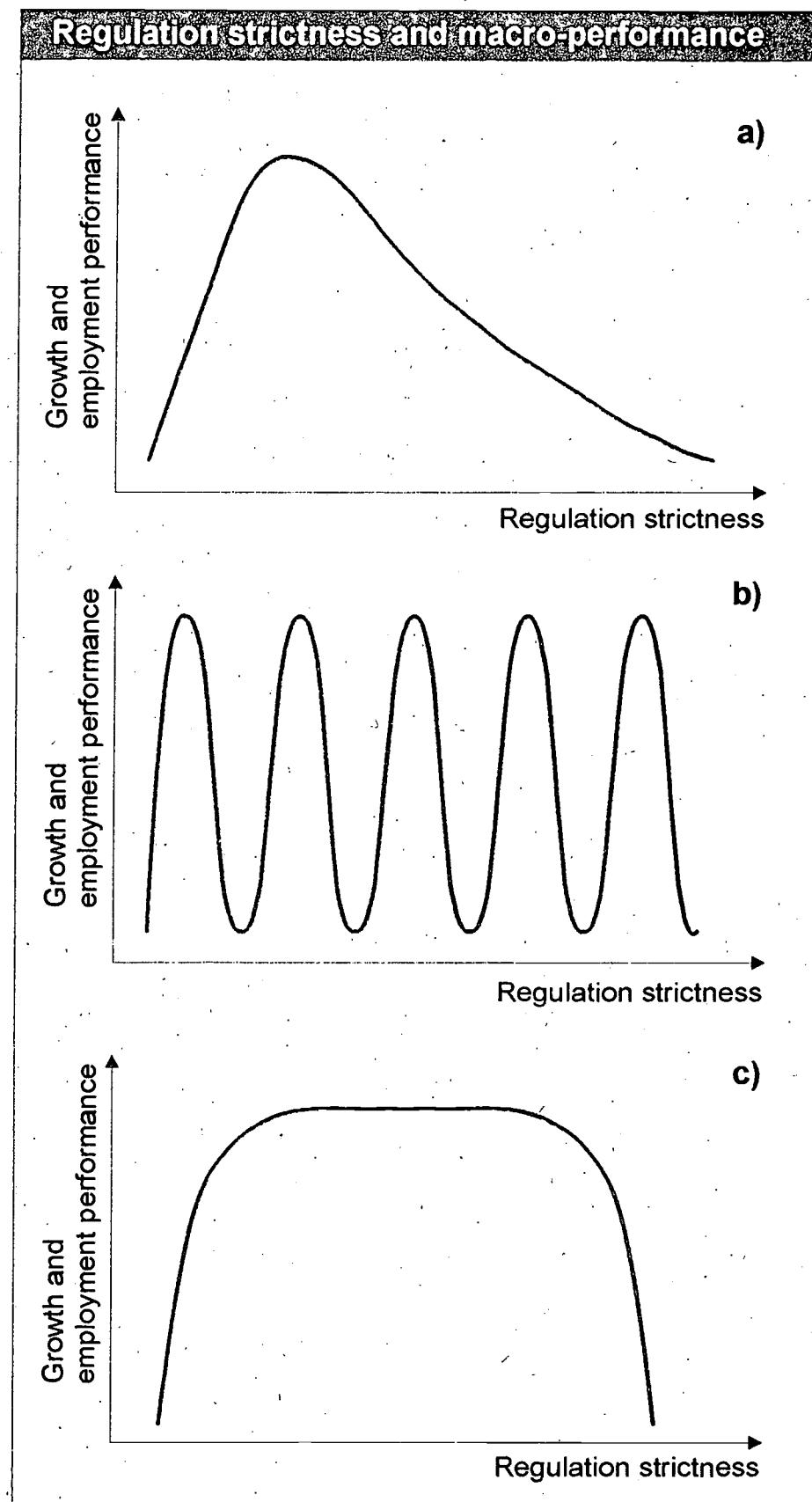
⁵ Cf. in more detail on this subject: Buttler/Walwei 1990

entirely or at least postponed. Ultimately, however, a dismissal is not avoided if the premium is exhausted in the case of insufficient product demand.

Thirdly: too little flexibility regarding wages and working times increases the pressure towards dismissals in the case of structural or cyclical decline in product demand under otherwise equal conditions. The cost effects of *de jure* employment security come more strongly to the fore as a result and the deregulation debate is rekindled. The collectively agreed regulations which were amended in the 1990s, granting firms considerably more scope for firm-specific solutions in crisis phases, give some indication of the relevance of this argument. Exemption clauses allow firms to make adjustments both to wages and to working time. First studies of the agreements on the safeguarding of employment show that firms make increased use of internal flexibility instruments in crisis phases in order to be able to adjust costs and the deployment of labour to the changed demand conditions (cf. Seifert 1999). In view of the growing importance of firms' employment pacts it should not be disputable that there are still possibilities for action with regard to the named alternatives for flexibility and therefore that at least partial compensation for employment security could be created at firm level. This is also suggested by a number of internationally comparative studies, which determined in particular the lack of flexibility of wages and working times as a key cause of the employment crisis here in Germany (cf. for example Funk 1999, Franz 1999, Werner 1998).

If these findings and the extended theoretical-conceptual framework are taken together on the basis of approaches of law and economics, new questions arise which concern the relationship between institutional structure (regulation) on the one hand and the economic and labour market performance on the other hand (cf. on this subject Gries 2001). Figure 4 portrays the possible relationships in the form of graphs. The present knowledge points to the fact that there is probably no single optimum regulation, in other words one which promises economic success for the different economies (Fig. 4a). It is more the case that international comparisons (Fig. 4b) provide evidence that even with very different regulation degrees, success or failure are possible (multimodal distribution) or that even a plateau of success could exist (Fig. 4c). This could be put down to the flexibility alternatives mentioned earlier which can be given in legal systems or also as a result of making full use of existing possibilities for action (in the context of wage setting or the agreement of the duration and location of working time). A suitable labour-law framework would thus be at best one of the necessary conditions for good economic and labour market performance, but would probably not be sufficient.

Figure 4:



Source: Gries (2001)

6 Conclusion: Need for reform from the viewpoint of employment policy?

Labour market regulations can have both efficiency-reducing and efficiency-increasing effects. The decisive question for the economic analysis of labour law is therefore whether concrete protective norms lead to a restriction of freedom for the economic decision-makers or whether they make scope for freedom possible for the individuals in the first place. Labour-law protective norms therefore do not only concern avoiding market failure, but also concern not letting policy failure occur in the first place by means of practicable regulations.

The labour market effects of employment protection regulations are often overrated according to the results of international comparisons. Thus there is little evidence that regulation strictness has an effect on the levels of employment and unemployment, if one disregards the statistical relationship between low regulation and high economic growth, which needs to be investigated further. However, such regulations probably do have some impact with regard to the structure of unemployment and employment. New entrants to the labour market, those returning to work and the unemployed have a more difficult time on regulated labour markets. Thus a conflict of aims (also at firm level) becomes clear. The question arises as to whether it could make sense to increase the employment prospects of the peripheral workers by means of less dismissal protection for the core workforce.

Internationally comparative analyses suggest that *de jure* employment security is negatively correlated with labour turnover. However, fluctuation at micro- and macroeconomic level is associated with expenditure (e.g. frictions as a result of search and familiarisation) and returns (e.g. new ideas and better allocation). It is clear in this respect that an evaluation of the pros and cons (in the sense of a cost-benefit analysis) of more or less labour turnover can not be done with the aid of scientific analyses alone.

The empirical and theoretical findings collected in this paper provide no reasons for a large-scale deregulation of employment protection regulations. But as was already indicated in the second section, there is a need for revision in every legal system because basic conditions are constantly changing. It would thus be a matter of reforms aimed at modernising the legal framework. In view of the still too weak employment dynamics and the persistent unemployment in Germany, revisions of employment protection legislation would depend on four aspects:

- The manufacturing industry is increasingly taking second place behind the service sector as a shaping force and a dominant employer. In particular the service sector with its more medium-sized enterprises has a great need for flexibility, which can be explained by product peculiarities. Services can not be produced and stocked up and then withdrawn from the stock during peak times. If structural change is to be pushed ahead with the aim of reinforcing the growth forces, the legislation that is probably suitable for large industrial enterprises and predominantly internal labour markets needs to be geared in future more closely to the realities of the medium-sized firms of the service industry. Here a general adjustment of the labour-law framework would probably be preferable to raising threshold values, in order not to increasingly create "law-free" areas.
- Protective regulations direct attention to existing employment relationships and their preservation. This applies in the case of individual dismissal with the employee's legitimate interest in the continuation of the employment, but also in the case of collective

dismissals with the worry about job losses. Less strict employment protection and thus presumably more turnover on the labour market would help to change the perspective. Attention would be directed away from the preservation of existing jobs and more towards the creation of new jobs (in new and expanding firms). This, too, would intensify the necessary structural change towards high-quality products and services.

- In revisions of labour law the interests of outsiders (unemployed and peripheral workers) need to be taken more into account (cf. Ichino 1998). As this opens up a conflict of aims with the protection rights of the insiders, it would be necessary to discuss compensation possibilities in detail. More market on the labour market due to more freedom in the termination of employment relationships would seem to be possible if acceptable exchanges were developed – like with the “flexicurity” concepts of Denmark and the Netherlands. If the workers are expected to accept a higher risk of becoming unemployed and thus probably more external flexibility, their protection must be dealt with fairly in the reforms of the social security system, which are also on the agenda (e.g. by means of a greater orientation towards target groups or improved instruments aimed at maintaining and expanding employability). If the persistence of unemployment were also to be broken down with the aid of a partial deregulation, this would also have a macroeconomic dimension. A higher effective supply can have an effect of wage moderation and thus encourage employment creation.
- Finally, as international comparisons show, the limits of possible deregulation have not yet been reached as far as flexible employment forms (e.g. fixed-term employment and temporary employment) are concerned. This has been encouraged by the “gain in image” of these forms of employment in the recent past. The background of this is as follows: unlike with the leap from unemployment into a regular employment relationship, which has become increasingly more difficult, flexible employment forms gradually reduce the obstacles in the way of permanent integration into the labour market. More labour-law deregulation in this area require the two sides of industry to take into account the special needs of flexible workers (as part of their collective agreements).

Table A1: Relationship between growth and labour market (1980-2000)
- Indicators from Okun's and Verdoorn's Laws in selected industrial countries -

Countries ¹⁾	Gross domestic product	Employed persons	Unemployment rate	Okun's Law			Verdoorn's Law				
				Annual average growth rate (1980-2000)	Difference (1980-2000)	Threshold of the drop in unemployment	Elasti-city	R ²	Employment threshold	Elasti-city	R ²
USA	3.3	1.7	-3.6	2.9	-0.4	0.8	0.3	0.5	0.7	0.7	0.7
United Kingdom	2.4	0.4	-3.3	2.5	-0.5	0.5	2.0	0.8	0.5	0.5	0.5
Ireland	5.3	1.7	-6.6	4.8	-0.4	0.6	2.9	0.7	0.7	0.7	0.7
Denmark	1.9	0.3	-3.6	1.9	-0.6	0.8	1.3	0.5	0.5	0.5	0.5
Finland	2.6	-0.2	4.9	3.2	-0.5	0.8	2.9	0.8	0.8	0.8	0.8
Netherlands	2.6	1.5	-6.1	2.3	-0.6	0.6	0.5	0.5	0.7	0.7	0.7
Sweden	1.9	0.0	3.3	2.2	-0.6	0.8	1.9	0.8	0.6	0.6	0.6
Japan	2.8	0.6	2.5	4.1	-0.1	0.6	-0.2	0.2	0.3	0.3	0.3
Germany ²⁾	2.1	0.4	4.2	3.0	-0.3	0.3	1.4	0.6	0.6	0.6	0.6
France	2.1	0.4	2.2	2.5	-0.5	0.5	1.4	0.6	0.6	0.6	0.6
Spain	2.8	1.0	-0.3	2.9	-1.0	0.8	2.0	1.3	0.9	0.9	0.9
Italy	1.9	0.4	3.1	3.4	-0.1	0.0	1.0	0.4	0.2	0.2	0.2

1) The order of the countries results from the country ranking of legislation strictness (incl. collective dismissals) late 1990s in Table 2.

2) Until 1991 western Germany; from 1992 the whole of Germany

Definition of Okun's Law and Verdoorn's Law : see explanations in the text.

Source: European Commission (2001): Europäische Wirtschaft Nr. 71: Die EU-Wirtschaft: Jahresbilanz 2000; own calculations
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Table A2: Relationship between growth and labour market (1980-1990)
- Indicators from Okun's and Verdoorn's Laws in selected industrial countries -

Countries ¹⁾	Gross domestic product	Employed persons	Unem- ployment rate	Okun's Law			Verdoorn's Law		
	annual average growth rate (1980-1990)	Difference (1980-1990)	Threshold of the drop in unemployment	Elasti- city	R ²	Employ- ment threshold	Elasti- city	R ²	
USA	3.2	1.8	-2.0	2.9	-0.4	0.9	0.0	0.6	0.8
United Kingdom	2.7	0.5	-1.9	3.0	-0.5	0.5	1.9	0.7	0.4
Ireland	3.6	-0.2	2.6	5.2	-0.3	0.3	4.0	0.4	0.3
Denmark	1.6	0.3	-0.6	2.0	-0.6	0.8	1.1	0.6	0.8
Finland	3.1	0.5	-1.7	2.4	-0.2	0.5	0.9	0.2	0.3
Netherlands	2.2	1.1	-2.7	2.2	-0.6	0.6	0.6	0.7	0.6
Sweden	2.0	0.7	-0.9	1.9	-0.3	0.7	-1.0	0.2	0.2
Japan	4.2	0.9	-0.1	4.3	-0.1	0.7	-	0.0	0.0
Germany ²⁾	2.2	0.6	0.9	2.8	-0.4	0.7	1.3	0.6	0.6
France	2.5	0.3	1.7	3.1	-0.5	0.6	1.9	0.6	0.7
Spain	2.9	0.8	1.8	3.5	-0.9	0.8	2.3	1.4	0.9
Italy	2.3	0.6	1.6	-1.5	0.1	0.0	-	2.2	0.1

1) The order of the countries results from the country ranking of legislation strictness (incl. collective dismissals) late 1990s, in Table 2.

2) Until 1991 western Germany; from 1992 the whole of Germany

Definition of Okun's Law and Verdoorn's Law: see explanations in the text.

Source: European Commission (2001). Europäische Wirtschaft Nr. 71: Die EU-Wirtschaft: Jahresbilanz 2000; own calculations

Table A3: Relationship between growth and labour market (1990-2000)
- Indicators from Okun's and Verdoorn's Laws in selected industrial countries -

Countries ¹⁾	Gross domestic product	Employed persons	Unemployment rate	Okun's Law				Verdoorn's Law			
				Annual average growth rate (1990-2000)	Difference (1990-2000)	Threshold of the drop in unemployment	Elasti-city	R ²	Employment threshold	Elasti-city	R ²
USA	3.4	1.5	-2.8	2.8	-0.3	0.5	0.5	0.5	0.5	0.5	0.5
United Kingdom	2.2	0.2	-3.2	2.0	-0.5	0.9	2.0	0.9	0.9	0.7	0.7
Ireland	7.0	3.7	-10.5	4.3	-0.3	0.8	1.6	0.7	0.7	0.9	0.9
Denmark	2.3	0.3	-3.7	1.8	-0.6	0.9	1.4	0.3	0.3	0.2	0.2
Finland	2.2	-0.9	3.2	3.5	-0.6	0.8	3.2	0.9	0.9	0.8	0.8
Netherlands	2.9	1.9	-3.0	2.2	-0.5	0.5	0.6	0.8	0.8	0.7	0.7
Sweden	1.7	-0.7	2.8	2.4	-0.6	0.8	2.5	0.9	0.9	0.8	0.8
Japan	1.3	0.4	2.6	3.3	-0.1	0.4	0.6	0.5	0.5	0.5	0.5
Germany ²⁾	1.9	0.3	2.5	4.6	-0.1	0.1	1.5	0.6	0.6	0.6	0.6
France	1.8	0.5	0.0	1.8	-0.6	0.7	1.1	0.7	0.7	0.8	0.8
Spain	2.6	1.2	-2.3	2.5	-1.3	0.9	1.7	1.3	1.3	0.9	0.9
Italy	1.6	0.2	1.9	2.1	-0.3	0.3	1.3	0.7	0.7	0.3	0.3

1) The order of the countries results from the country ranking of legislation strictness (incl. collective dismissals) late 1990s, in Table 2.

2) Until 1991 western Germany; from 1992 the whole of Germany
 Definition of Okun's Law and Verdoorn's Law: see explanations in the text.

Source: European Commission (2001): Europäische Wirtschaft Nr. 71: Die EU-Wirtschaft: Jahresbilanz 2000; own calculations

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